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Molecular tectonics: Generation of grid and porous diamondoid coordination networks by calixarene based tectons

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Abstract

Combinations of neutral tetrakis meta-pyridyl appended calix[4]arene derivatives in 1,3-A conformation as tectons 3 (tetrakis-meta-pyridyl- tetrathiacalix[4]arene) and 4 (tetrakis-meta-pyridyltetrathiatetramercaptocalix[4]arene) with MX2, behaving as a neutral metallatecton, lead to the formation of 2- and 3-D neutral coordination networks. In all cases, the metal centre adopts a distorted octahedral geometry with the two anions occupying the two apical positions. For compound 3-CdX 2 (X = Cl or Br), 4-CdBr2 and 4-FeCl2 similar porous diamondoid 3D networks, resulting from the tetrakis monodentate behaviour of the organic tectons, are formed. In marked contrast, for 4-CoX2 (X = Cl or Br), only two out of the four pyridyl units take part in the connectivity pattern leading thus to the formation of 2D grid type architectures. This journal is © the Partner Organisations 2014.

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